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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/525,030	10/14/2005	Millind Diwakar Atrey	038871.55852US	3490
23911 7590 06/20/2008 CROWELL & MORING LLP INTELLECTUAL PROPERTY GROUP P.O. BOX 14300 WASHINGTON, DC 20044-4300			EXAMINER KASTURE, DNYANESH G	
			ART UNIT 3746	PAPER NUMBER
			MAIL DATE 06/20/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/525,030

**Applicant(s)**

ATREY ET AL.

**Examiner**

DNYANESH KASTURE

**Art Unit**

3746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/CS-100)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. The replacement drawings were received on April 23, 2008. These drawings are accepted. The previously made objections to the drawings are withdrawn in light of the replacement drawings submitted.

### ***Specification***

2. The previously made objections to the specification are withdrawn in light of applicants' amendments submitted on April 23, 2008.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 - 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morse et al (US Patent 6,530,237 B2) in view of Tanaka et al (US Patent 6,016,662 A) and as extrinsically evidenced by Petty (US Patent 5,689,880 A)

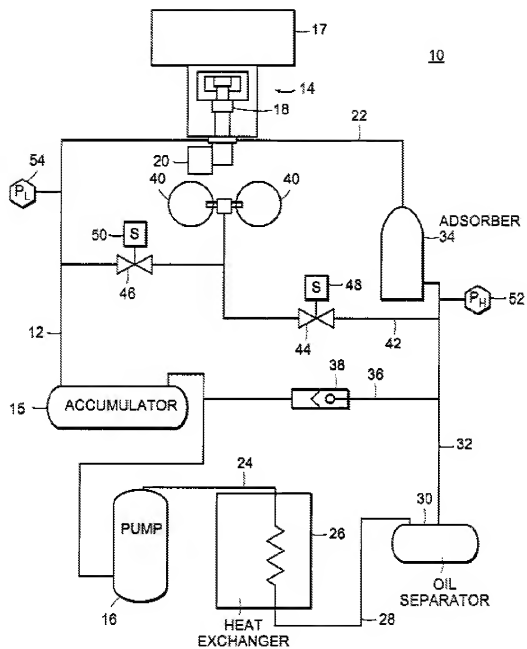


FIG. 4

FIG. 5

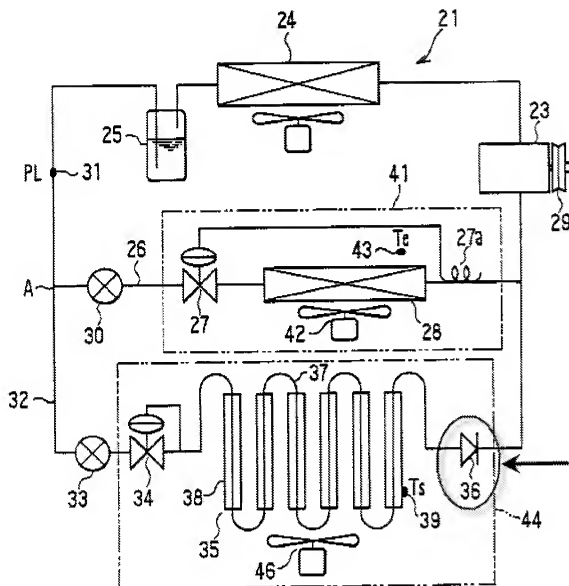


Figure 5 of Tanaka et al

5. In Re claim 1, with reference to Figure 4 above, Morse et al discloses a pumped helium circuit (column 3, lines 25-29) comprising:

- a compressor (16)
- high pressure port which is inherent to the compressor pump outlet
- low pressure port which is inherent to the compressor pump inlet
- supplied equipment (17)
- compressed helium is supplied through line (22) and returns from line (12)
- a pressure relief valve (38) which opens in response to a predetermined

pressure differential linking the high and low pressure ports as stated in column 3, lines 55-60: "When the pressure of the helium within the supply line 32 reaches a certain point beyond the pressure necessary to overcome the bias against the valve, the valve opens to allow helium to flow from the helium supply line to the helium return line 12.."

- With regards to "means for preventing oil carry-over from the compressor to the supplied equipment, characterized in that said means comprises means for preventing oil leaving the low pressure port and traveling towards the supplied equipment" within claim 1, this limitation meets the three prong test per MPEP 2181 and thereby invokes 35 USC 112 6<sup>th</sup> paragraph. The means for preventing oil carry-over from the compressor to the supplied equipment has been disclosed in the specification as a gas reservoir, oil trap or an oil adsorber which prevents oil from leaving the low pressure port and travels towards the supplied equipment. Morse et al discloses an accumulator (15) which provides a "Buffer" as stated in column 3, line 31, and positioned between the supplied equipment and the compressor. In addition, Petty discloses evidence in

Column 1, Lines 13 – 18 that an accumulator typically interposed between an evaporator (supplied equipment) and compressor can function as an oil trap. Also, as applicants suggest in their response to the first office action, the buffer of Morse et al smooths variations in pressure and in order to perform the smoothing function the accumulator needs to be a gas reservoir. The accumulator (15) of Morse et al is therefore is an equivalent element for at least an oil trap or gas reservoir.

6. However, Morse et al does not disclose a non-return valve located between a low pressure side of the pressure relief valve and the supplied equipment.

7. Nevertheless, Figure 5 of Tanaka et al discloses a vehicle air conditioning apparatus comprising a Check Valve (36), a non return valve disposed close the supplied equipment (evaporator) in a refrigeration circuit.

8. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the pumped helium circuit of Morse et al to incorporate the check valve of Tanaka et al in the helium circuit between a low pressure side of the pressure relief valve and the supplied equipment for the purpose of ensuring one way flow of refrigerant.

9. In Re claim 2 Petty discloses in column 1, line 18 that an accumulator can function as an oil trap.

10. In Re claim 3, while the accumulator of Morse et al does function as an oil trap as discussed above, it does not explicitly disclose that the accumulator could function as

an oil adsorber. However, Morse et al discloses an oil separator and an adsorber on the high pressure side of the compressor which "further filters the helium" as stated in Column 3, Line 50. It would have been obvious to a person having ordinary skill in the art at the time of the invention to incorporate the oil adsorber similar to the one in the high pressure side of the circuit of Morse et al into the accumulator as an additional means to trap oil by trapping more of it through an oil adsorber. Therefore Morse et al modified by Tanaka et al and extrinsically evidenced by Petty as applied to claim 1 discloses all the claimed limitations.

11. In Re claim 4, the accumulator of Morse et al would have to be a gas reservoir as discussed above. Alternatively, Morse et al discloses a gas reservoir (40) between the low pressure port of compressor (16) and the supplied equipment (17).

12. In Re claim 5, with reference to the analysis of claim 1 and 3, the accumulator of Morse et al is a gas reservoir and an oil adsorber.

13. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morse et al (US Patent 6,530,237 B2) in view of Tanaka et al (US Patent 6,016,662 A) as extrinsically evidenced by Petty (US Patent 5,689,880 A) and further in view of Jacobsen et al (US Patent 5,807,075 A)



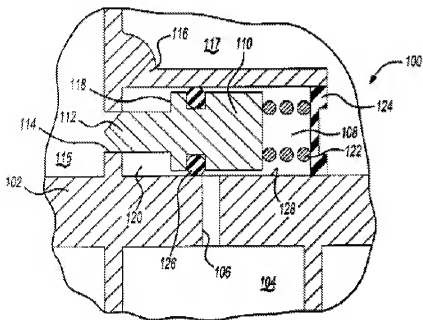
Art Unit: 3746

14. In Re claim 6, Morse et al modified by Tanaka et al and extrinsically evidenced by Petty as applied to claim 1 discloses all the claimed limitations except for a pressure actuated switch in the circuit between the low pressure part and the supplied equipment operable to stop compressor operation in response to low pressure port pressure falling below a minimum value.

15. Nevertheless, Jacobson et al discloses a volumetric pump with an under-pressure sensor disposed at its inlet which signals a microprocessor to shut off the motor if an under-pressure is detected as stated in the Abstract.

16. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the pumped helium circuit of Morse et al to include an under-pressure sensor at the inlet of the compressor and incorporate the microprocessor controlled motor shutdown procedure of Jacobsen et al for the purpose of ensuring safety when a less than the minimum pressure (under-pressure) is detected.

17. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morse et al (US Patent 6,530,237 B2) in view of Hugenroth et al (US Patent 6,190,138 B1)

Fig-5

18. In Re claim 7, as discussed above, Morse et al discloses a pumped helium circuit (column 3, lines 25-29) comprising:

- a compressor (16)
- high pressure port which is inherent to the compressor pump outlet
- low pressure port which is inherent to the compressor pump inlet
- supplied equipment (17)
- compressed helium is supplied through line (22) and returns from line (12)
- a pressure relief valve (38) which opens in response to a predetermined pressure differential linking the high and low pressure ports as stated in column 3, lines

Art Unit: 3746

55-60: "When the pressure of the helium within the supply line 32 reaches a certain point beyond the pressure necessary to overcome the bias against the valve, the valve opens to allow helium to flow from the helium supply line to the helium return line 12.."

19. However, Morse et al does not disclose that the pressure relief valve is connected directly to the compressor from the high pressure port.

20. Nevertheless, in Figure 5 depicted above, Hugenroth et al discloses in Column 5, Lines 29-37, a compressor with a valve element (110) that moves to the right when the pressure in chamber (115) is "too high" and relieves the pressure in chamber (115) to chamber (117) independent of the low pressure port. In the process, this pressure relief system avoids additional lines on the non return side thus reducing the potential for additional oil migration.

21. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the compressor disclosed by Morse et al to incorporate the pressure relief valve element of Hugenroth for the purpose of protecting the compressor as stated by Hugenroth in Column 5, Line 38: "...for providing pressure relief, and protecting the compressor..".

22. In Re claim 8, the apparatus disclosed by Morse et al modified by Hugenroth as applied to claim 7 is inherently capable of performing the method as claimed. Under the principles of inherency, if a prior art device, in its normal and usual operation, would necessarily perform the method claimed, then the method claimed will be considered to

be anticipated by the prior art device. When the prior art device is the same as a device described in the specification for carrying out the claimed method, it can be assumed the device will inherently perform the claimed process - MPEP 2112.02.

23. Alternatively, Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morse et al (US Patent 6,530,237 B2) in view of Tanaka et al (US Patent 6,016,662 A) and further in view of Oshima et al (US Patent 3,796,522 A).

24. In Re claim 1, Morse et al modified by Tanaka et al have been discussed above. In addition, Oshima et al provides oil separating means at the suction port of a compressor in Column 2, Lines 8-10: "A primary object of the present invention is to provide a compressor comprising oil separating means provided at a refrigerant suction port thereof, by which the oil present in the refrigerant is separated".

25. It would have been obvious to a person having ordinary skill in the art at the time of the invention to further modify the compressor of Morse et al modified by Tanaka et al to include the oil separation means at the suction port as taught by Oshima et al for the purpose of purpose of "quickly collecting the oil present" as stated by Oshima et al in Column 2, Line 17.

***Response to Arguments***

26. Applicant's arguments with respect to claims 6 and 7 have been considered but are moot in view of the new ground(s) of rejection.

27. Applicant has argued that of ordinary skill would not be prompted to insert the check valve of Klusmier between the low pressure side of the bypass and the supplied equipment as stated in claim 1. Although the examiner is not fully persuaded by this argument, a new ground of rejection has been made.

28. Applicant has argued that the accumulator of Morse et al is likely a buffer to smooth variations in pressure, and that nothing suggests that it acts as means for preventing oil carryover from the low pressure port to the supplied equipment. Applicant's argument has been carefully considered and it is not persuasive. Even if it is only a buffer to smooth variations in pressure as applicant suggests, it still has to be a gas reservoir in order to perform the smoothing function. Applicant has disclosed on page 13 of the response that the means for preventing oil carryover may take any number of forms including a gas reservoir. In addition, US Patent 5,689,880 in Column 1, line 13-19 clearly indicates that an accumulator placed between the evaporator (supplied equipment) and the inlet of the compressor functions to trap oil.

***Conclusion***

29. Since new grounds of rejection for some of the claims were not necessitated by applicant's amendments, this action is made non final.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/  
Supervisory Patent Examiner, Art  
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